

642-212

Dart Aerospace Ltd.

Date: Thursday, 27/11/2008 2:23:20 PM
 User: Julie Dawson

Process Sheet

Customer	: CU-DAR001 Dart Helicopters Services	Drawing Name	: HIGH GEAR SKIDTUBE ASSEMBLY 206 A/B
Job Number	: 43798A		
Estimate Number	: 10163		
P.O. Number	:	Part Number	: D206642241
This Issue	: 27/11/2008 S.O. No. :	Drawing Number	: D2650 REV F
Prsht Rev.	: NC	Project Number	: N/A
First Issue	: / / Type : SKIDTUBES	Drawing Revision	: F
Previous Run	: 43797A	Material	:
Written By	:	Due Date	: 20/12/2008 Qty: 1 Um: Each
Checked & Approved By	: <u>JLD 08-11-27</u>		
Comment	: Est Rev:M 04.12.02 Revised procedural steps KJ/JLM		

Additional Product

Job Number:



Seq. #:	Machine Or Operation:	Description :
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1.0	DC	DOCUMENT CONTROL
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Comment: DOCUMENT CONTROL

Photocopy bluefile & type labels per PPP D206-642-241

CHG003

N/A *Handwritten initials*

2.0	D2620	Skidtube, 206 Skidtube
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Comment: Qty.: 1.0000 Each(s)/Unit Total: 1.0000 Each(s)

Pick:

Qty Part Number Description Batch

1 D2620 Bent Tube 3" OD

B43845

DP

8-12-4

3.0	D32861	Doubler
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Comment: Qty.: 2.0000 Each(s)/Unit Total: 2.0000 Each(s)

Pick:

Qty Part Number Description Batch

2 D3286-1 Doubler

43121

SL 8-12-6

4.0	D2647	Cap
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Comment: Qty.: 1.0000 Each(s)/Unit Total: 1.0000 Each(s)

Pick:

Qty Part Number Description Batch

1 D2647

Fwd Cap

B35475

BE 8-12-4

5.0	SKIDTUBES 1	SKIDTUBESS RESOURCE 1
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Comment: LANDING GEAR RESOURCE 1

1-Deburr Fwd edge of tube

DP 8-12-4

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
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Job Number:



Seq. #:

Machine Or Operation:

Description :

2- Remove ridge on inside of Fwd edge of tube as per Dwg D2650

BE 8-12-4

3-Weld Fwd Cap as per Dwg D2650. Use aluminum rod. Grind D2647 to fit as required.

Pick:

Qty Part Number Description Batch

A/R Aluminum Rod *M109560/M109213 BE 8-12-4*

4-Grind weld flush to cap on top surface only. *BE 8-12-4*

5-Cut Aft end as per dwg 2650 from front of tube and Deburr

6-Remove inner indexing ridge on Aft end of skidtube as per Dwg D2650

7-Open holes for Aft end cap as per Dwg D2650 with #30 Drill Bit using DT8025.

8-Drill pilot holes using Dt 8167.

9-Locate DT8732 from inner Aft saddle hole & 3rd crossbolt hole. Insert D3286-1 doubler using DT8732 & D206-642-241-T1, then locating doubler off of 3/16" holes, cleco DT8732 & doubler leaving DT8732 for added support.

10- Drill D3286-1 doubler rivet holes in tube using # 40 drill, spot drilling doubler at the same time.

11-Working from the center out, drill # 30 holes into D3286-1 doubler. Cleco each hole as it is being drilled. Verify angle of holes to accommodate rivet heads.

12-Remove 3/16" cleco's only and open GHW holes to Ø0.500" as per Dwg D2650

13-Remove D3286-1 doublers, identify orientation, deburr, then attach them to the workorder

14-Remove indexing edge using DT8741 as per Dwg D2650

15-C'sink GHW rivet holes as per Dwg D2650

SL 8-12-6

6.0

QC6

DIMENSIONAL CHECK



Comment: DIMENSIONAL CHECK

8 08/10/08 (H)

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Job Number:



Seq. #: Machine Or Operation: Description :

7.0 SKIDTUBES 1 SKIDTUBESS RESOURCE 1



Comment: LANDING GEAR RESOURCE 1

1-Open crossbolt holes to Ø0.3125" as per Dwg D2650

2-Drill pilot holes using DT8028-3, then open to Ø0.297" as per Dwg D2650. Open Aft cap hole #6.

3-Deburr tube and blow out chips from inside the tube

MB
08-12-11

8.0 HAND FINISHING1 HAND FINISHING RESOURCE #1



Comment: HAND FINISHING RESOURCE #1

Chemical Conversion Coat as per QSI 005 4.1

a.m *08-12-11*

9.0 QC3 INSPECT POWDER COAT/CHEMICAL CONVERSION



Comment: INSPECT POWDER COAT/CHEMICAL CONVERSION

MB *8-12-12*

10.0 SKIDTUBES 1 SKIDTUBESS RESOURCE 1



Comment: LANDING GEAR RESOURCE 1

1-Open holes to finished size as per Dwg D2650, D2650-3 Drilling Detail (without cutting fluid)

2-C'sink crossbolt spacer holes as per Dwg D2650(without cutting fluid)

3-Deburr and blow out all chips from inside the tube

MB
8-12-12

11.0 QC6 DIMENSIONAL CHECK



Comment: DIMENSIONAL CHECK

8-12-12

12.0 CR3212404 Cherry Rivet



Comment: Qty.: 52.0000 Each(s)/Unit Total: 52.0000 Each(s)

Pick:

Qty Part Number Description Batch
52 CR3212-4-04 Rivet 110372

42 *110372* *10*

SL8-12-23

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

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Part Number: D206642241

Job Number:



Seq. #: Machine Or Operation: Description :

13.0

D26543

Web



Comment: Qty.: 1.0000 Each(s)/Unit Total : 1.0000 Each(s)

Pick:

Qty Part Number Description Batch

1. D2654-3 Web 43805

SL 8-12-23

14.0

SKIDTUBES 1

SKIDTUBESS RESOURCE 1



Comment: LANDING GEAR RESOURCE 1

1-Locate, install and rivet doublers as per Dwg D2650. Micro-shave rivets as required

2-Bond D2654-3 web in place as per QSI 015. Ensure holes line up. Allow 12 Hrs. cure time before cutting

Start Date: 8-12-23 Time: 2:00

Finish Date: 08-12-23 Time: 8:30 AM

Pick:

Qty Part Number Description Batch

A/R Sikaflex-291 109883

Sikaflex expire date: 9-7-11

SL 8-12-23

15.0

QC5

INSPECT WORK TO CURRENT STEP



Comment: INSPECT WORK TO CURRENT STEP

16.0

D2649

Cross Bolt Spacer



Comment: Qty.: 18.0000 Each(s)/Unit Total : 18.0000 Each(s)

Pick:

Qty Part Number Description Batch

18 D2649 Crossbolt spacer 343803

Ph 08-12-24

17.0

D32863

Spacer



Comment: Qty.: 2.0000 Each(s)/Unit Total : 2.0000 Each(s)

Pick:

Qty Part Number Description Batch

2 D3286-3 Spacer 343648

BE 09-01-05

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

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Job Number: 43798A

Part Number: D206642241

Job Number:



Seq. #: Machine Or Operation: Description :

18.0

SKIDTUBES 1

SKIDTUBESS RESOURCE 1



Comment: LANDING GEAR RESOURCE 1

1-Insert D2649 crossbolt spacers. Weld as per QSI 004 and Dwg D2650. Remember to back drill each hole to 0.25" before welding the other side. Use aluminum rod.

Pick:

Qty Part Number Description Batch

A/R Aluminum Rod M109213 *OK 08/12/31*

2-Grind welds flush as per Dwg D2650.

DP 8-12-31

3-Using DT8733, insert (2) D3286-3 spacers as per QSI 004 and Dwg D2650. Remember to back drill each hole to Ø0.402" before welding other side. Use SS rod as required.

A/RSS Rod NONE *BE 9-01-05*

4-Counterbore 5/16" x 0.750" deep except 7th hole from Aft end as per Dwg D2650. Deburr

DP 9-1-5

19.0

CCR264SS33

Cherry Rivet



Comment: Qty.: 2.0000 Each(s)/Unit Total : 2.0000 Each(s)

Pick:

Qty Part Number Description Batch

2 CCR264SS3-3 Rivets M110122

DP 9-1-5

20.0

CR3212403

Cherry Rivet



Comment: Qty.: 2.0000 Each(s)/Unit Total : 2.0000 Each(s)

Cherry Rivet

batch: M110139

DP 9-1-5

21.0

D2680041

Nut Plate



Comment: Qty.: 1.0000 Each(s)/Unit Total : 1.0000 Each(s)

Pick:

Qty Part Number Description Batch

1 D2680-041 Nut Plate B34599

DP 9-1-5

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

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Job Number: 43798A

Part Number: D206642241

Job Number:



Seq. #: Machine Or Operation: Description :

22.0 HAND FINISHING1 HAND FINISHING RESOURCE #1



Comment: HAND FINISHING RESOURCE #1

Install D2680-041 Nut Plate as per Dwg D2650

JD 9-1-5

23.0 QC9 VISUAL WELDING INSPECTION



Comment: VISUAL WELDING INSPECTION

09/01/05 / 09/01/05

24.0 QC5 INSPECT WORK TO CURRENT STEP



Comment: INSPECT WORK TO CURRENT STEP

09/01/05 @

25.0 HAND FINISHING1 HAND FINISHING RESOURCE #1



Comment: HAND FINISHING RESOURCE #1

Pressure wash as per QSI 005

FL 09/01/08

26.0 POWDER COATING POWDER COATING



Comment: POWDER COATING

Powder Coat White Gloss (Ref. 4.3.5.1) as per QSI 005 4.3. Make sure Nut Plate Thread is protected using paint screw, and mask GHW studs.

START TIME: *2:30*

OVEN TEMPERATURE: *320°*

FINISH TIME: *3:00*

FL 09/01/08

27.0 QC3 INSPECT POWDER COAT/CHEMICAL CONVERSION



Comment: INSPECT POWDER COAT/CHEMICAL CONVERSION

09-01-12

28.0 D26483 Wearpad



Comment: Qty.: 4.0000 Each(s)/Unit Total: 4.0000 Each(s)

Pick:

Qty Part Number

Description

Batch

4 D2648-3

Wearpad

B43802

FL 09-01-12

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

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Part Number: D206642241

Job Number:



Seq. #:	Machine Or Operation:	Description :
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29.0	D265613	Wearplate
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Comment: Qty.: 1.0000 Each(s)/Unit Total: 1.0000 Each(s)

Pick:

Qty	Part Number	Description	Batch
1	D2656-13	Wearshoe	B40897

212

30.0	D265621	Wearplate
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Comment: Qty.: 1.0000 Each(s)/Unit Total: 1.0000 Each(s)

Pick:

Qty	Part Number	Description	Batch
1	D2656-21	Wearshoe	B43992

211

31.0	D265633	Wearplate
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Comment: Qty.: 1.0000 Each(s)/Unit Total: 1.0000 Each(s)

Pick:

Qty	Part Number	Description	Batch
1	D2656-33	Wearshoe	B20756

211

32.0	D34291	Wearpad
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Comment: Qty.: 1.0000 Each(s)/Unit Total: 1.0000 Each(s)

Pick:

Qty	Part Number	Description	Batch
1	D3429-1	Wearpad	B42779

211

33.0	ALS41032130	Insert
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Comment: Qty.: 44.0000 Each(s)/Unit Total: 44.0000 Each(s)

Pick:

Qty	Part Number	Description	Batch
44	ALS4-1032-130	Inserts	M1105819

or (see QSI 017)

211 09-01-12 211

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

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Job Number: 43798A

Part Number: D206642241

Job Number:



Seq. #:	Machine Or Operation:	Description :
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34.0	AN960JD10L	Washer
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Comment: Qty.: 46.0000 Each(s)/Unit Total : 46.0000 Each(s)

Pick:

Qty	Part Number	Description	Batch
46	AN960JD10L	Washer	M105793

Handwritten initials

35.0	MS27039108	Screw
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Comment: Qty.: 46.0000 Each(s)/Unit Total : 46.0000 Each(s)

Pick:

Qty	Part Number	Description	Batch
46	MS27039-1-08	Screw	M110450

Handwritten initials

36.0	D26511	Plug
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Comment: Qty.: 18.0000 Each(s)/Unit Total : 18.0000 Each(s)

Pick:

Qty	Part Number	Description	Batch
18	D2651-1	Plugs	B42153

Handwritten initials

37.0	D26513	O-Ring
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Comment: Qty.: 18.0000 Each(s)/Unit Total : 18.0000 Each(s)

Pick:

Qty	Part Number	Description	Batch
18	D2651-3	O-Rings	B41972

Handwritten initials

38.0	MS27039406	Screw
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Comment: Qty.: 1.0000 Each(s)/Unit Total : 1.0000 Each(s)

Pick:

Qty	Part Number	Description	Batch
1	MS27039-4-06	Screw	M109061

Handwritten initials

39.0	AN960JD416	Washer
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Comment: Qty.: 1.0000 Each(s)/Unit Total : 1.0000 Each(s)

Pick:

Qty	Part Number	Description	Batch
1	AN960JD416	Washer	M108161

Handwritten initials

09.01.12

Handwritten mark

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

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Seq. #: Machine Or Operation: Description :

40.0

HAND FINISHING1

HAND FINISHING RESOURCE #1



Comment: HAND FINISHING RESOURCE #1]

✓ 1- Install inserts & wearpads as per dwg D2922. Use a drop of Sikaflex inside insert holes before installing wearpad/wearplate.

A/R Sikaflex-291

M109883

✓ Sikaflex expire date:

09/11

2-Install D2651-3 O-Rings on D2651-1 plugs with Petroleum Jelly and install plugs as per Dwg D2650 (D2650-3 detail). Clean excess adhesive.

✓ 3-Install MS27039-4-06 Screw as per DEO 9153.

Handwritten: 09-01-12 (X)

41.0

D2646

Aft Cap



Comment: Qty.: 1.0000 Each(s)/Unit Total : 1.0000 Each(s)

Pick:

Qty Part Number Description Batch

1 D2646

Aft Cap B37377

Handwritten: 265

42.0

HAND FINISHING1

HAND FINISHING RESOURCE #1



Comment: HAND FINISHING RESOURCE #1

1-Install D2646 Aft Cap and seal with Sikaflex. Clean excess adhesive

A/R Sikaflex-291

M109883

Sikaflex expire date:

09/11

Handwritten: 09-01-12 (X)

2-Wing Walk as per Dwg D2650-3 and QSI 005 4.4

Batch: m10997

Handwritten: - FL 09/01/13 (1)

43.0

QC3

INSPECT POWDER COAT/CHEMICAL CONVERSION



Comment: INSPECT POWDER COAT/CHEMICAL CONVERSION

Handwritten: 09/01/13 (X)

44.0

QC5

INSPECT WORK TO CURRENT STEP



Comment: INSPECT WORK TO CURRENT STEP

Handwritten: 09/01/13 (X)

W/O:		WORK ORDER CHANGES					
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Seq. #:

Machine Or Operation:

Description :

45.0

PACKAGING 1

PACKAGING RESOURCE #1



9/6/15

Comment: PACKAGING RESOURCE #1

Identify and pack for shipping as per PPP D206664241 IF APPLICABLE

Location:

PPP Rev:

43798

sel

1/2 SP

46.0

QC21

FINAL INSPECTION/W/O RELEASE



09/01/15

Comment: FINAL INSPECTION/W/O RELEASE

Job Completion



U 09.01.15

W/O:		WORK ORDER CHANGES					
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QTY -1	QTY -3	QTY -5	QTY -7	PART NUMBER	DESCRIPTION
X				D2650-1	SKIDTUBE ASSEMBLY
	X			D2650-3	SKIDTUBE ASSEMBLY
		X		D2650-5	SKIDTUBE ASSEMBLY
			X	D2650-7	SKIDTUBE ASSEMBLY
1	1	1	1	D2600-1-160	EXTRUSION
1				D2654-1	WEB
	1			D2654-3	WEB
		1		D2654-5	WEB
			1	D2654-7	WEB
1	1	1	1	D2646	AFT CAP
1	1	1	1	D2647	CAP
17	18	19	23	D2649	CROSS BOLT SPACER
16	18	14	22	D2651-1	PLUG
16	18	14	22	D2651-3	O-RING
1	1	1	1	D2680-041	NUT PLATE
2	2			D3286-1	DOUBLER
2	2			D3286-3	STUD
42	44	54	60	ALS7-1032-130	INSERT (or AKS4-1032-130, ALS4-1032-130, ALS7-1032-130)
2	2	2	2	AN960JD10L	WASHER
2	2	2	2	CCR264SS3-3	RIVET
2	2	2	2	CR3212-4-03	RIVET
2	2	2	2	MS27039-1-08	SCREW
1	1	1	1	MS27039-4-06	SCREW
1	1	1	1	AN960JD416	WASHER
52	52			CR3212-4-04	RIVET

F

F

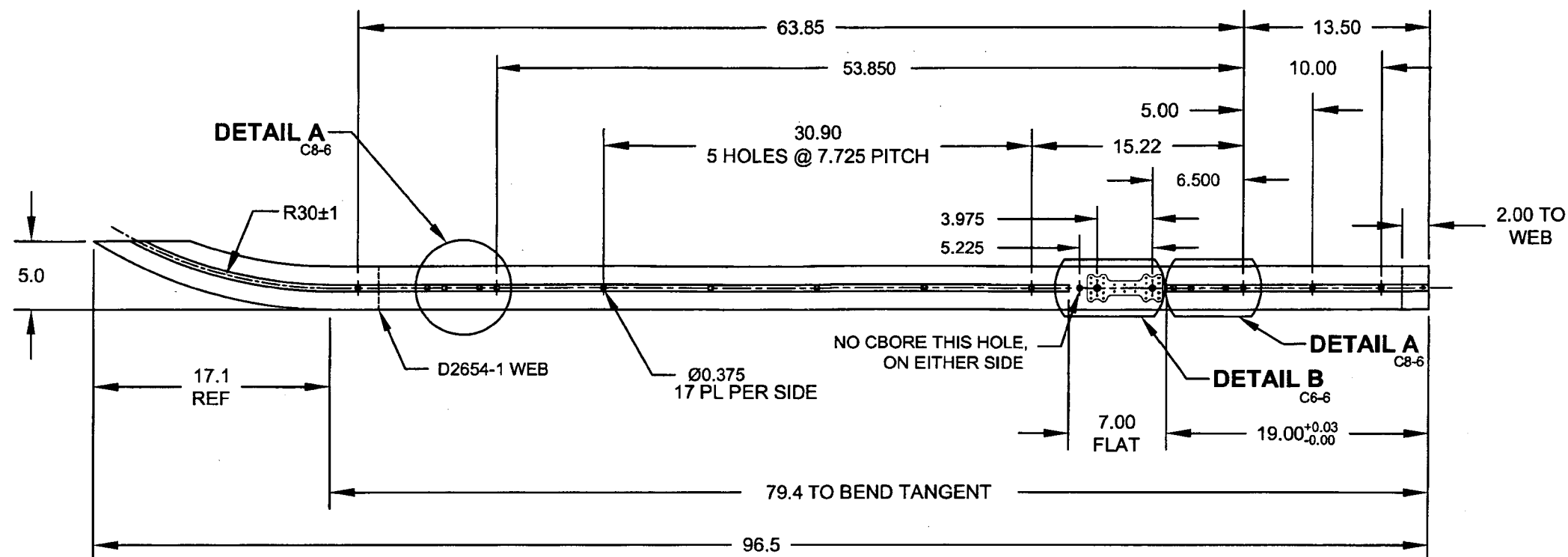
NOTES:

- 1) MATERIAL: N/A
- 2) FINISH: -CHEMICAL CONVERSION COAT PER DART QSI 005 4.1
-POWDER COAT WHITE (4.3.5.1) PER DART QSI 005 4.3
-BLACK ANTI-SKID PAINT AS INDICATED TO 0.5 ABOVE LOCATION RIDGE PER DART QSI 005 4.4
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX
- 6) IDENTIFICATION: NONE
- 7) WEIGHT: N/A
- 8) WELD PER DART QSI 004
- 9) DAMAGE TOLERANCE ON FWD BEND:
THERE SHOULD BE NO VISIBLE WRINKLES IN THE BEND FROM THE GROUND TO A HEIGHT OF 5 INCHES ABOVE THE GROUND. IT IS ACCEPTABLE TO POLISH OUT GOUGES UP TO 0.020 DEEP IN THE BENT PORTION OF THE TUBE. A MAXIMUM REDUCTION IN DIAMETER OF 0.150" IS ACCEPTABLE IN THE BENT PORTION OF THE TUBE.
- 10) BOND WEB INTO OUTER TUBE WITH SIKAFLEX-241/-291 ADHESIVE PER DART QSI 015
- 11) INSERT D2651-1 PLUG C/W D2651-3 O-RING IN HOLES MARKED 'P' (BOTH SIDES OF TUBE)
- 12) DRILL Ø0.297 FOR ALS7-1032-130 INSERTS USING TEMPLATE DT8056-1 ON -1 TUBE, DT8056-3 ON -3 TUBE, DT8056-5 ON -5 TUBE, AND DT8056-7 ON -7 TUBE. INSTALL INSERTS AFTER FINISH.
- 13) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED

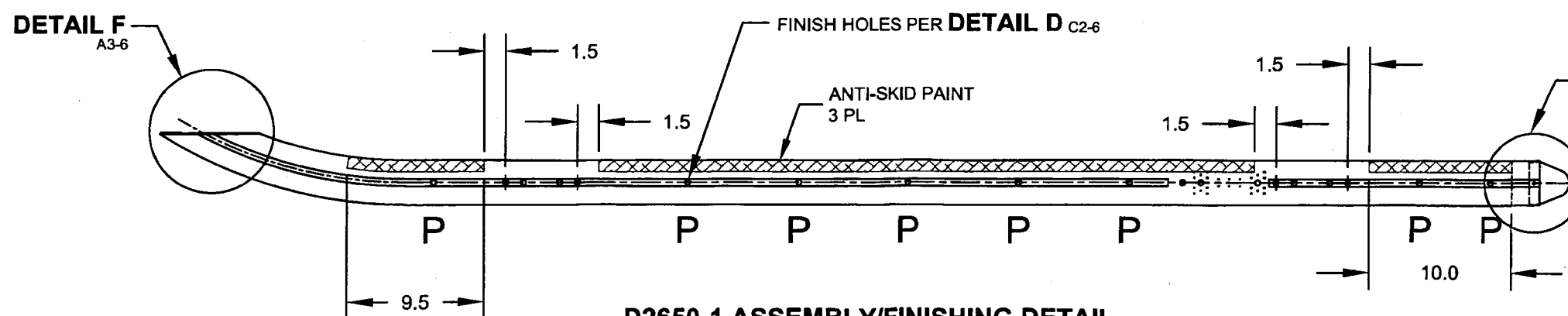
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F	DRAWING UPDATED TO CURRENT STANDARDS. SHT 6 ADDED. ALL SECTION AND DETAIL VIEWS TRANSFERRED TO SHT 6. SHT 1 IN PL PART D2649 QTY UPDATED. SHT 6 SECT C-C GRIND INSTRUCTIONS DELETED FROM NOTE 7 (SEE NCR 239).	AJS	08.08.08
E	RMOVE CBORE, CHG DRILL, ADD CHAMFER	CP	06.03.30
D	REDRAW; INCORP. DE09136/9153/9163 MOD GROUND HANDLING ON D2650-1/-3	CP	04.05.17
C	CHANGE HOLE PATTERN AND FRONT END	DS	97.10.29
B	AS MANUFACTURED CHANGES	DS	97.06.26
A	NEW ISSUE	DS	97.03.25
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D2650-1 BENDING/DRILLING DETAIL

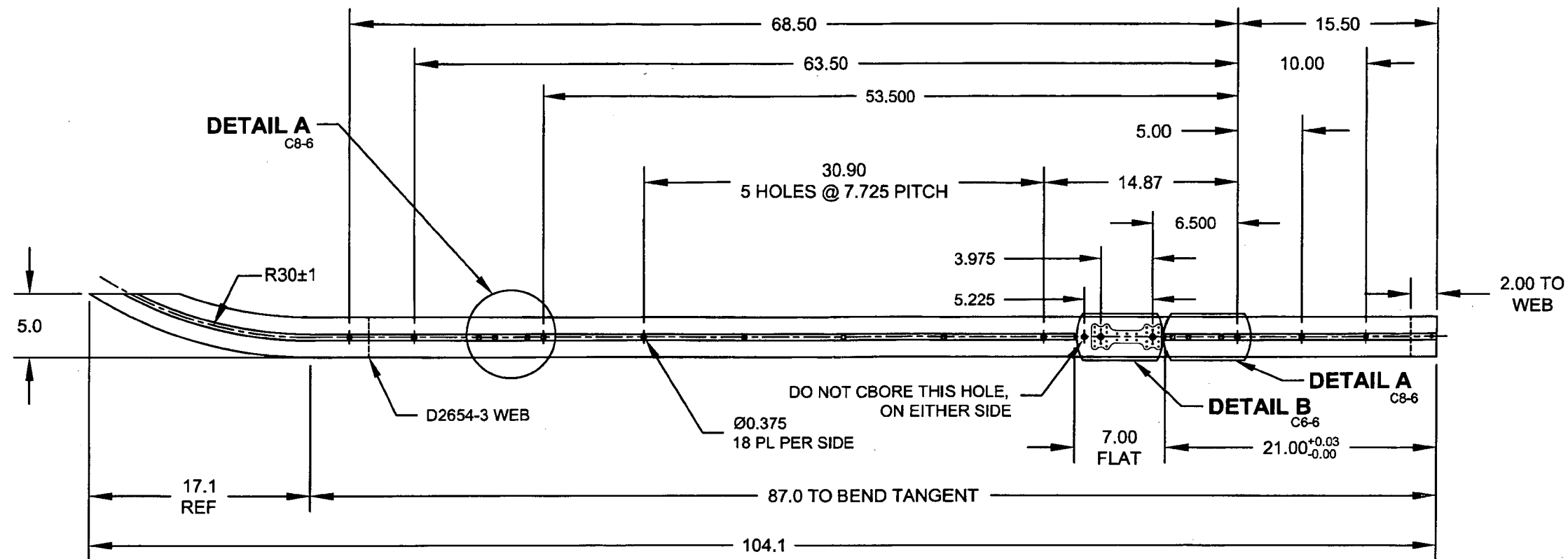


D2650-1 ASSEMBLY/FINISHING DETAIL

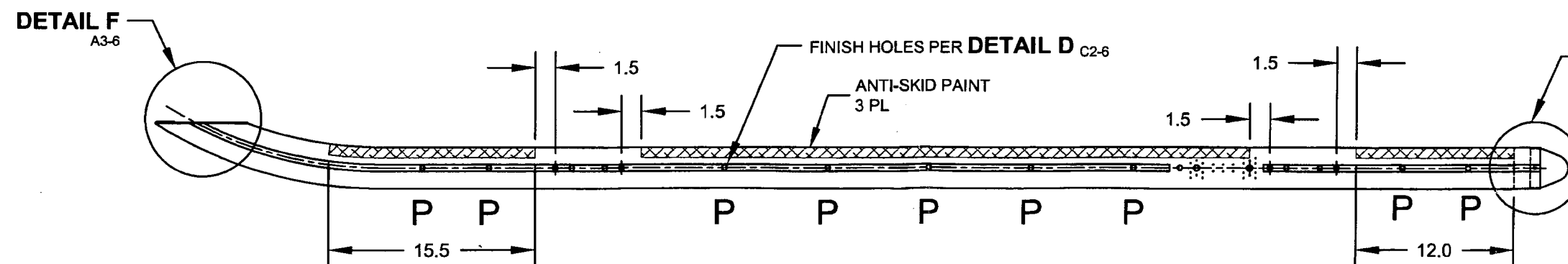
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D2650-3 BENDING/DRILLING DETAIL

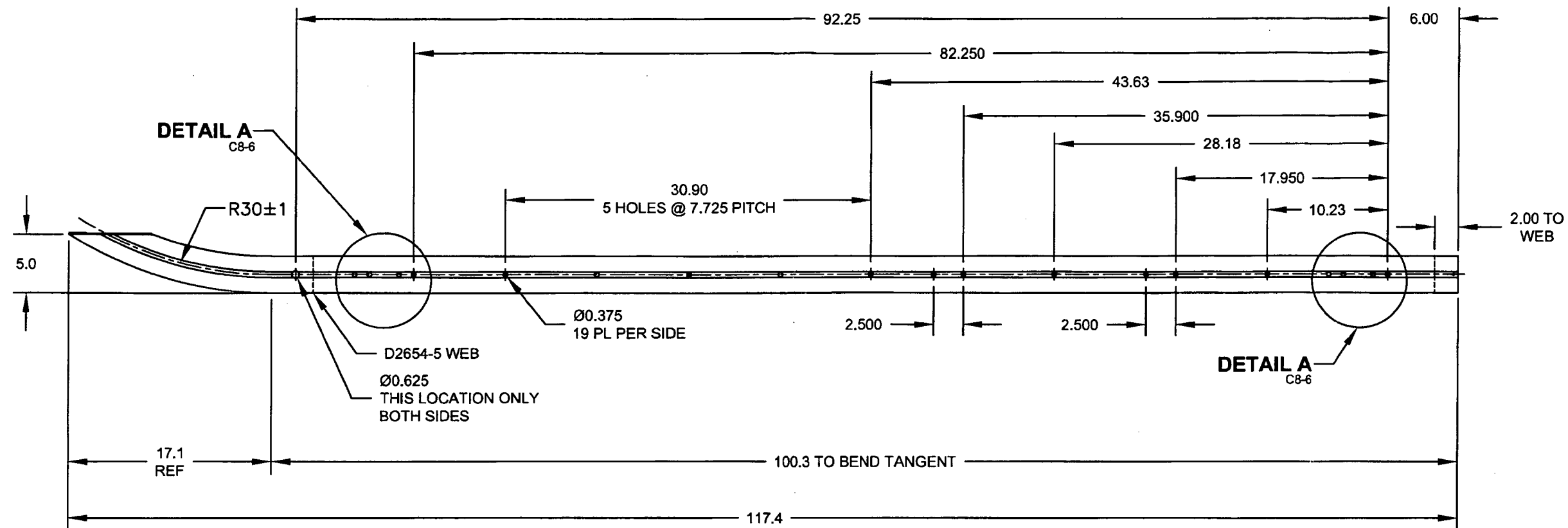


D2650-3 ASSEMBLY/FINISHING DETAIL

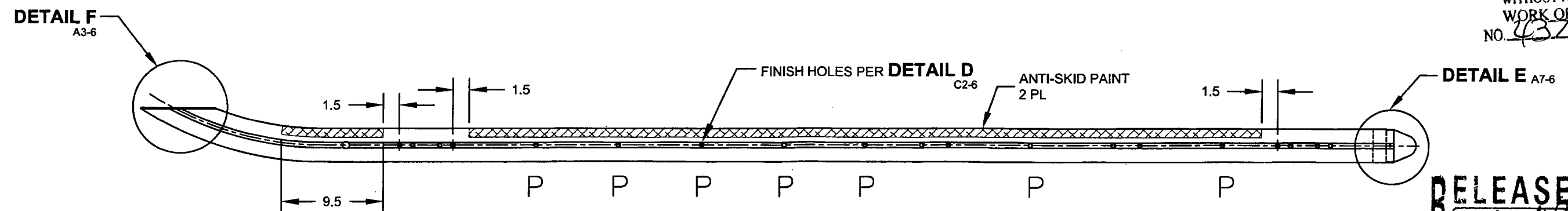
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D2650-5 BENDING/DRILLING DETAIL

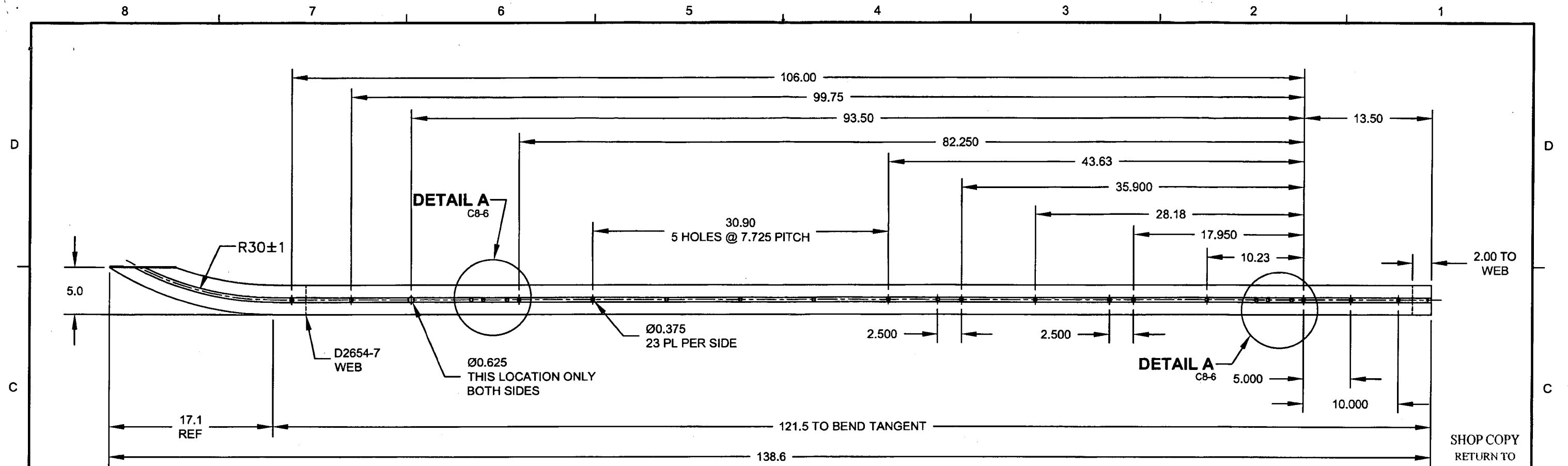


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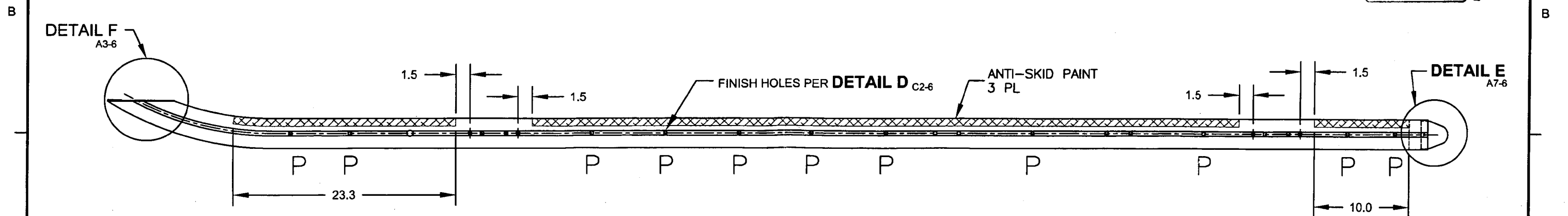
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D2650-7 BENDING/DRILL DETAIL

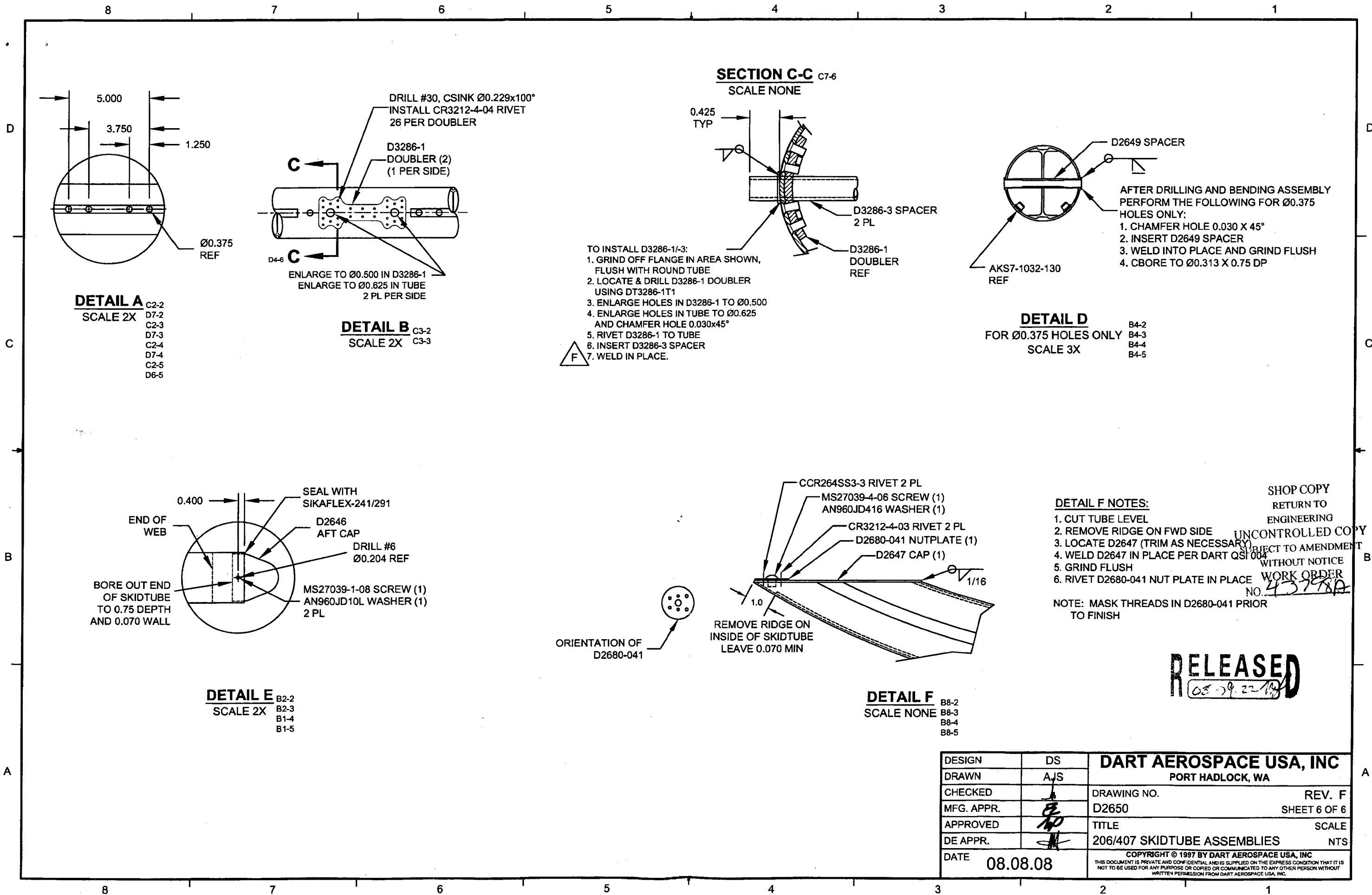
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D2650-7 ASSEMBLY/FINISHING DETAIL

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- TO INSTALL D3286-1/3:
1. GRIND OFF FLANGE IN AREA SHOWN, FLUSH WITH ROUND TUBE
 2. LOCATE & DRILL D3286-1 DOUBLER USING DT3286-1T1
 3. ENLARGE HOLES IN D3286-1 TO Ø0.500
 4. ENLARGE HOLES IN TUBE TO Ø0.625 AND CHAMFER HOLE 0.030x45°
 5. RIVET D3286-1 TO TUBE
 6. INSERT D3286-3 SPACER
 7. WELD IN PLACE.

DETAIL F NOTES:

1. CUT TUBE LEVEL
2. REMOVE RIDGE ON FWD SIDE
3. LOCATE D2647 (TRIM AS NECESSARY)
4. WELD D2647 IN PLACE PER DART QSI 004
5. GRIND FLUSH
6. RIVET D2680-041 NUT PLATE IN PLACE

NOTE: MASK THREADS IN D2680-041 PRIOR TO FINISH

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NO. 185

AWS D17.1.2001
QUALIFICATION TEST RECORD

Name: Barclay Elliot
Job number: B43737 A
Part number: A206-642-241
Description: 206 Skid tube
Welding Process: Tig[☒] Mig[]
Base material: Alum
Current: AC[☒] DC[]

TEST REQUIREMENTS AND RESULTS

Visual: pass[☒] fail[]
Penetration: pass[☒] fail[]

UNACCEPTABLE

Cracks: pass[☒] fail[]
Undercut: pass[☒] fail[]
Pin holes: pass[☒] fail[]
Overlap (cold lap): pass[☒] fail[]
Porosity (surface): pass[☒] fail[]
Coloration: pass[☒] fail[]

Qualifier David David Date of Test Coupon 09/01/05

Welder Barclay Elliot Date of Test Coupon 09/01/05

The above named individual is qualified in accordance with AWS D17.1.2001 to weld